

Synthesis of thermo stable alumina powder from sol-gel derived boehmite

이민재, 김승문, 이윤조, 전기원*
한국화학연구원 신화학연구단 석유대체연구센터
(kwjun@kriect.re.kr*)

A simple sol-gel route was employed to generate high surface area boehmite using aluminum iso-propoxide (AIP), acetic acid (AA) and 2-propanol (IPA). The boehmite precursor, after calcination at 1100 °C for 5 h, was transformed into metastable phases of alumina with surface area of 68.7 m²/g and pore volume of 0.62 cm³/g and average pore diameter 34.7 nm while a commonly used commercial one (CATAPAL-A) was transformed into only α -alumina phase having lower surface area of 9.1 m²/g and pore volume of 0.10 cm³/g with average pore diameter of 44.6 nm. The retention of high surface area in sol-gel derived alumina powder, as compared to that derived from the commercial CATAPAL-A boehmite precursor, is attributable to fibrillar nature of as derived boehmite which is responsible for retarding sintering kinetics because of less number of contact points between the particles during calcination.